

ENDOTRACHEAL CATHETER

SUMMARY OF THE INVENTION

The endotracheal catheter consists of three items; the catheter, the magnetic stylet and the magnetic probe.

The catheter is a piece of flexible tubing approximately 1.7 millimeters in diameter and approximately 7.5 centimeters in length with three axially imbedded deformed memory wires. The external end is equipped with a Leur Lock adapter. The inner elliptically shaped end has three slits approximately 0.64 centimeters in length situated midway between the deformed memory wires.

The magnetic stylet will be of a lesser diameter, for a sliding fit, than the internal diameter of the catheter and shall have a pointed end to be used to insert the catheter into the trachea.

The magnetic probe is to be used for retraction and re-insertion of the catheter and is similar to the magnetic stylet except that the inner end is rounded.

The endotracheal catheter in itself serves two purposes; the first is the transportation of oxygen directly to the trachea or windpipe, whereby the natural respiratory system can move it with ease to the bronchi and lungs without waste and without as much exertion as is required by normal inhalation.

The second purpose of the endotracheal catheter is to allow injection of a saline liquid wash solution into the trachea which assists in loosening the secretions in the trachea and larynx, and stimulates coughing which immediately causes expectoration of the sputum, the result being the freer passage of air during the normal respiratory process.

In order to utilize the endotracheal catheter, a surgical procedure must be performed to introduce the catheter into the trachea. After anesthetization of the area between the second and third tracheal rings, the magnetic stylet is inserted into the catheter so that the deformed memory wires are attracted to the stylet making the external diameter of the catheter the same for the full length.

Using the combination catheter and magnetic stylet as the piercing tool, the instrument is forced through the wall of the throat, extending approximately 1.25 centimeters into the trachea cavity. The magnetic stylet is then withdrawn, allowing the memory wires in the catheter to expand and thereby retain the internal end of the catheter in the trachea. At this point, oxygen is introduced through the catheter.

At such time as it becomes necessary to perform a liquid wash, the oxygen supply must first be disconnected from the catheter. A syringe with approximately 1½ cubic centimeters of saline solution would then be forcibly injected through the Leur Lock adapter of the catheter causing instantaneous expectoration of the sputum. After removal of the syringe, the oxygen supply would be reconnected to the Leur Lock adapter.

The magnetic probe is used to remove and re-install the catheter through the existing stoma for the purpose of cleaning or changing the catheter. The magnetic probe would be utilized in the same manner as the magnetic stylet to attract the memory wires.

The endotracheal catheter eliminates the need for nasal cannulas and masks for oxygen inhalation. The latter devices deliver oxygen to the anatomic dead space of the trachea, the larynx, and the nasopharynx, and the atmosphere. Only a small percentage of the

oxygen administered in this manner reaches the alveoli. This device, the endotracheal catheter, eliminates this waste.

Cannulas cause drying and irritation of the upper airway. Masks are hot and confining. Cannulas and masks are difficult to keep in place. Eating and speaking are also compromised by these archaic methods; the endotracheal catheter eliminates these inconveniences.

This invention does not inhibit the user from being able to talk as does a normal tracheostomy tube or a trach-button because of the minute diameter.

Using the endotracheal catheter, no humidification is necessary as the oxygen enters the already humidified area of the trachea.

This invention has many far-reaching possibilities. It will enhance the physical well-being of people suffering from all types of respiratory diseases including emphysema, bronchitis, black lung, asthma, those people suffering from pollen-inhibited allergies, and even those suffering from the common cold.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an enlarged side elevation view of the catheter tube.

FIG. 2 is an enlarged sectional view taken along line A—A of FIG. 1.

FIG. 3 is an enlarged side elevation view of the magnetic probe.

FIG. 4 is an enlarged side elevation view of the magnetic stylet.

FIG. 5 is an enlarged side elevation view of the combined and assembled apparatus shown in FIG. 1 and FIG. 4 inserted through the trachea wall.

FIG. 6 is an enlarged side elevation view of the combined apparatus shown in FIG. 1 and FIG. 4 inserted through the trachea wall with the apparatus shown in FIG. 4 partially retracted.

BACKGROUND OF INVENTION

1. Field of Invention

The invention relates to a plastic tube which can be inserted through the flesh and the wall of the trachea allowing oxygen to be introduced to the lungs or a saline solution introduced to the trachea. This invention relates to medical devices and methods, and more particularly to a device and method for introducing oxygen or a saline solution into the trachea.

In addition, methods of the prior art tend to be cumbersome and expensive. Accordingly, the need exists for a portable device which would supply the necessary catalysts to the lungs without creating physical abuse in order to facilitate respiration and removal of secretions from the bronchi and lungs.

With that need in mind, it is therefore the general object of this invention to provide a method and apparatus for introduction of oxygen into the lungs in order to decrease the muscular efforts for normal respiration and secondly to introduce liquid wash solution into the trachea to assist in breakdown of secretions and stimulate coughing to cause expectoration of the sputum and thereby result in the less obstructed passage of air during the normal respiratory process.

It is the further object of this invention to provide the apparatus which will remain in place in the trachea and can be therefore in operation while the user is walking, eating, sleeping or performing normal daily functions.